AMENDMENTS

In the Claims:

Claims 1 – 22 (canceled)

23. (Currently Amended) An isolated ~~and purified~~ nucleic acid ~~or fragment thereof~~ that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is ~~obtainable~~ obtained through complementation of yeast nuclear base transporter-deficient host cells with a plant or animal gene ~~bank and selection of nuclear base transporter-positive host cells~~;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;

c) a nucleic acid that hybridizes with a nucleic acid according to b) in a solution comprising 25% formamide, 5X SSPE, 0.1% SDS, 5X Denhardt and 50 µg herring-sperm DNA after 20 hours at 37°C, followed by washing in 2X SSC and 0.1% SDS at 42°C;

d) ~~a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~ a nucleic acid which codes for a polypeptide or protein with nuclear base transporter activity having at least 40% identity to SEQ ID NO: 8 or SEQ ID NO: 9; or

e) ~~a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases~~ a nucleic acid having a coding sequence selected from the group consisting of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, and 10

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e).~~

~~with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO: 3 to 5 are excluded~~.

24. (Canceled)

25. (Currently amended) The nucleic acid according to ~~one of the~~ Claim ~~1~~ 23, wherein said nucleic acid is a DNA.

26. (Currently amended) A fragment of ~~a~~ the nucleic acid of Claim 24 ~~that codes for a plant or animal nuclear base transporter comprising:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);~~

~~with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded~~,

wherein said fragment ~~is characterized in that in anti-sense orientation to a promoter it can inhibit~~ inhibits the expression of a nuclear base transporter in a host cell when expressed from a promoter in the antisense orientation, and wherein said fragment is at least ten nucleotides, and wherein said fragment consists of a nucleic acid sequence contained within a sequence selected from the group consisting of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, and 10.

27. (Canceled)

28. (Currently amended) A construct comprising the nucleic acid sequence of Claim 23 ~~at least a portion of an isolated and purified nucleic acid that codes for a plant or animal nuclear base transporter that itself comprises:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);~~

~~with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded~~,

wherein said nucleic acid is under the control of an element regulating expression.

29. (Currently amended) The construct according to Claim ~~6~~ 28, ~~that~~ wherein said nucleic acid is expressed from the regulatory element in anti-sense orientation ~~to the regulatory element~~.

30. (Currently amended) The construct according to Claim ~~6~~ 28, wherein said construct ~~that~~ is ~~available in~~ a plasmid.

31. (Currently amended) A host cell comprising ~~a~~ the nucleic acid of Claim 23 ~~or fragment thereof that codes for a plant or animal nuclear base transporter comprising:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);~~

~~with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded~~.

32. (Currently amended) The host cell according to Claim ~~9~~ 31 that is selected from bacteria, yeast cells, mammalian cells and plant cells.

33. (Currently amended) A transgenic plant, transgenic plant part, or seed of the transgenic plant ~~or host cell~~ that comprises a nucleic acid according to Claim 23 ~~or fragment thereof that codes for a plant or animal nuclear base transporter comprising:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);~~

~~with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded~~.

34. (Currently Amended) The transgenic plant, part of the transgenic plant, or seed ~~or host cell~~ according to Claim ~~11~~ 33, wherein said nucleic acid or fragment is integrated into a site on the genome that does not correspond to its natural position.

35. (Withdrawn) A protein obtainable through expression in a host cell of a nucleic acid according to Claim 1 or a nucleic acid having a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5.

36. (Withdrawn) An antibody that reacts with a protein obtainable through expression in a host cell of a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;

c) a nucleic acid that hybridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid having a sequence selected from the group consisting of SEQ ID NO; 3, SEQ ID NO: 4 and SEQ ID NO: 5.

37. (Currently amended) A process for ~~the manufacture of~~ producing a transgenic plant comprising the following steps:

A. inserting ~~a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or~~

~~g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5~~

the nucleic acid of Claim 23 into ~~in~~ a plant cell to make a transformed plant cell; and

B. regenerating a plant from the transformed plant cell.

38. (Currently amended) A process for influencing the nuclear base transporter properties of a plant, part of a plant or of seeds, comprising inserting into a plant cell or plant ~~a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:~~

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or~~

~~g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5~~ the nucleic acid of Claim 23.

39. (Canceled)

40. (Withdrawn) A use of a nucleic acid or fragment thereof for the isolation of homologous sequences from bacteria, fungi, plants, animals or human beings, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;

c) a nucleic acid that hybridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5.

41. (Currently amended) A ~~use of a nucleic acid or fragment thereof~~ method for the expression of a nuclear base transporter in a prokaryotic ~~and/~~or eukaryotic cells, ~~wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter~~ comprising:

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or~~

~~g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5~~ transfecting said cell with the construct of Claim 28 such that said nucleic acid is expressed.

42. (Currently amended) A ~~use of a nucleic acid or fragment thereof under the control of a regulatory element in anti-sense orientation for the inhibition of~~ method for inhibiting the expression of an endogenous nuclear base transporter in a prokaryotic or eukaryotic cells~~, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter~~ comprising inserting into said cell the nucleic acid of Claim 23, wherein said nucleic acid is expressed in the antisense orientation, and wherein said expression inhibits the expression of an endogenous nuclear base transporter[~~:~~]

~~a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;~~

~~b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;~~

~~c) a nucleic acid that hybridizes with a nucleic acid according to b);~~

~~d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);~~

~~e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;~~

~~f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or~~

~~g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5~~.

43. (Canceled)

44. (Withdrawn) A use of a nucleic acid method for the identification of inhibitors of nuclear base transport, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO: 8 or SEQ ID NO: 9;

c) a nucleic acid that hybridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or ore bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO: 3, SEQ ID NO: 4 and SEQ ID NO: 5.

45. (Currently amended) The nucleic acid fragment according to Claim ~~[4]~~ 26 that includes at least 50 nucleotides.

46. (Currently amended) The nucleic acid fragment according to Claim ~~[4]~~ 26 that includes at least 200 nucleotides.

47. (Currently amended) The construct according to Claim ~~6~~ 29 wherein expression of said nucleic acid ~~is a fragment characterized in that in anti-sense orientation of a promoter it can inhibit~~ inhibits the expression of a nuclear base transporter in a host cell.

48. (Currently amended) The construct according to Claim ~~7~~ 29 ~~that is available in~~ wherein said construct is a plasmid.

49. (Canceled)

50. (Canceled)

51. (Canceled)

52. (Canceled)

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Currently amended) The transgenic plant, transgenic plant part, or seed ~~or host cell~~ according to Claim ~~11~~ 33 ~~that comprises or further comprises a construct having~~ wherein said nucleic acid sequence is under the control of an element regulating expression.

57. (New) An isolated nucleic acid that is complementary to the nucleic acid of Claim 23.

58. (New) A plant cell produced by the process of Claim 38.

59. (New) A plant produced by the process of Claim 38.

60. (New) A method of regenerating a plant comprising growing a plant from the plant cell of Claim 58.

61. (New) The nucleic acid according to Claim 23, wherein said yeast cell is deficient in *fcy2* expression.

62. (New) The nucleic acid according to Claim 23, wherein said nuclear base transporter transports at least one compound selected from the group consisting of nuclear bases, nucleosides, cytokinines and alkaloids.

63. (New) The nucleic acid according to Claim 62, wherein said nuclear bases are selected from the group consisting of adenine, cytosine and hypoxanthine.

64. (New) The nucleic acid according to Claim 62, wherein said nucleoside is selected from the group consisting of adenosine and cytidine.

65. (New) The nucleic acid according to Claim 62, wherein said cytokinine is selected from the group consisting of zeatine and kinetine.